Recent Trends in Provincial Life Expectancy

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Many people think of life expectancy estimates as rather like a floating iceberg; cumbersome, slow to change direction, and revealing only a small 'tip' of overall health. In reality, they can be sensitive indicators, responding in a timely fashion more to factors that influence the health of the entire population – namely broad health determinants and health behaviour – than to specific health care interventions. Several recent examples of this include the life expectancy decrease in Eastern European countries¹ and in the African-American population of the United States in the late 1980s.² More surprising is the divergence in life expectancy in the seemingly similar European countries of Denmark and Sweden, where diverging social policy may be the contributing influence.³

We describe the recent changes in life expectancy in Canada to examine what are the trends between provinces and sexes.

METHODS

We compared provincial life expectancy estimates that were derived by Statistics Canada for the provinces from 1921 to 1997.⁴⁻⁷ Newfoundland life expectancy estimates were included since 1951. Life tables prior to 1986 were abridged. Estimates from 1993 were annual estimates, as opposed to 3-year averages for prior time

periods. Estimates for 1997 were based on preliminary data. Canadian estimates were compared to OCED countries using data published by that organization.⁸

RESULTS

Canadian life expectancy fares well globally, ranking third in the world behind Switzerland and Japan, and well ahead of the USA, despite a larger portion of the USA economy being allocated to health care. In Canada, life expectancy continues to increase at a steady pace, despite the more common belief that it is 'plateauing' (see Figure 1). Close to half the increase in life expectancy between 1931 and 1981 was from a decline in infant mortality.⁹ A decline in the mortality rate of older people is the strongest influence of the more recent life expectancy increase.

Within Canada, the difference between the highest and lowest provincial life expectancy decreased from 10.8 years to 1.4 years between 1926 and 1986. Since then, preliminary data suggest that the trend has started to reverse and by 1997 the provincial life expectancies range was 2.3 years (79.3 years in BC to 77.0 years in Newfoundland).

In the past decade there has also been a further shift towards an east to west provincial rank order. The lowest provincial life expectancies are now in Newfoundland, replacing Quebec, which held the dubious distinction from 1921 to 1995. In the west, British Columbia now has the highest life expectancy in Canada, replacing Saskatchewan, which had the highest for nearly 60 years.

The other notable trend is the narrowing gender difference since the early 1980s, a reverse in the trend from the previous cen-

tury or more.¹⁰ Nevertheless, the mortality rate for males (836 deaths per 100,000 persons in 1996, age-standardized to the 1991 Canadian population) is still over 60% higher than for females, resulting in a 5.6-year life expectancy difference in 1997 (Figure 2).

DISCUSSION

The early shift to a widening provincial life expectancy gap may be one of the most important recent health trends in Canada. If the trend continues, it will be a strong indication of a new and increasing inequality of provincial health. Even with the preliminary results there should be a call for further studies to understand how health differs between the provinces, why the differences are occurring, and most imperatively, what should be done to ensure equitable health across the country.

Although provincial estimates are influenced by many factors, lower life expectancy in the Atlantic provinces is undoubtedly related, in part, to behavioural risk factors. For example, Atlantic Canada has the highest prevalence in 4 of the 5 major well-established behavioural risk factors for cardiovascular disease (including smoking, obesity, sedentary lifestyle, and high blood pressure, but not elevated cholesterol.^{11,12} As such, it is not surprising that cardiovascular deaths are 30% lower in BC than in Newfoundland in 1997¹¹ and result in the main contribution to the difference in life expectancy between the two provinces. Similarly, there is a strong east/west gradient for lung cancer, the leading cause of cancer deaths. Smoking is related to 80-90% of lung cancer deaths, albeit there is a 10 to 15 year lag-period between smoking trends and lung cancer deaths. Although

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there are many factors contributing to smoking behaviour, one may question why the public policy response is smaller in those provinces with the most smokers. Smoking in public spaces is still too often a legislated norm in the Maritimes¹² and cigarette prices are usually among the lowest in the country,¹³ despite public support for greater restrictions.¹⁴

The gender gap is closing as a result of the increase in female lung cancer and a more rapid decline in male cardiovascular mortality and injuries.¹⁵ An inherent female genetic or hormonal advantage does not account for appreciable differences in gender life expectancy.

CONCLUSIONS

Life expectancy is a useful barometer of health because it leads us to consider what are the most important health influences. In Canada, the new trends in life expectancy that are emerging can be, in part, explained by changes in health behaviour. If smoking rates increase among young women and men's risk behaviours continue to improve, there may well be a further narrowing in the life expectancy gap between men and women. Whether the early trend of an increasing provincial gap continues may depend on an equitable response to differences in health behaviour across the country.

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Figure 1. Life Expectancy at Birth in Canada and the Provinces from 1921 to 1997
Note: The solid line is the Canadian estimate of life expectancy at birth for both men and women combined. The shaded area represents the high/low range of life expectancy of the provinces. On average there has been a one-year increase in life expectancy at birth for every five calendar years. Between 1921 and 1926, there was a decrease in Quebec's life expectancy.
(p) = preliminary data

Figure 2. Life Expectancy at Birth in Canada by Gender from 1921 to 1997
Note: The solid line is the Canadian estimate of life expectancy at birth for both men and women combined. The shaded area represents the high/low range of life expectancy between male (lower) and female (higher) life expectancy.
(p) = preliminary data

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